

5 However, it constrains storage media to material transmissions and does not permit flexible modifications of the recognition elements. Its practical field of application therefore also turns out to be fairly restricted.

10 A third method of acquisition would consist in transmitting the recognition elements by teletransmission, via a communications network. This solution, which offers great flexibility and makes it possible to utilize a system of automatic insertion both upstream and downstream of the broadcasting, is however penalised by the transmission resource requirements. Specifically, to be significant, the recognition elements are in numerous cases at risk of being relatively voluminous, pertaining to portions of audiovisual contents. Their transmission then entails significant costs in terms of bandwidth, encroaching on the communication resources. For
15 example, to transmit complete pictures in an analogue television environment, a bandwidth of only a few tens of k-bytes/second is available.

20 The present invention relates to a system and a process for synchronizing audiovisual programmes and interactive services, able to make it possible to be entirely unintrusive with regard to broadcasters and service operators, while permitting simple and reliable implementation and avoiding recourse to a programme guide. The system and the process of the invention make wide applications possible, both upstream and downstream of the broadcasting of the programmes, flexibly modifiable, and without
25 penalising the resources in terms of communications bandwidth.

The synchronization system and process of the invention apply also to other types of synchronization relating to

Document WO-01/60061 describes a technique for recording programmes before or after instants predefined for recordings. To do this, one or more "signatures" are generated on the basis of a video signal associated with a transmitted programme to be recorded. The processing of these signatures makes it possible to determine instants of start and end of the programmes to be recorded. These signatures may be utilized according to the two types of distinct embodiments hereinbelow, which may possibly be associated.

In a first type of embodiment, a user defines or obtains one or more reference elements, with which the signatures of the video signal received are subsequently compared. When a coincidence of the signatures and of the elements is noted, recording is triggered or halted. In the second type of embodiment, the signature of the video signal received is calculated periodically and changes thereto are investigated. When a significant variation of the signature is observed, one deduces therefrom that a change of programme has occurred and the recording is triggered or halted.

The first type leads to the difficulties mentioned above in respect of the prior acquisition of the recognition elements. On the other hand, the second type of embodiment necessitates periodic calculations of signatures in real time, thereby entailing constraints in terms of complexity and calculation costs. Moreover, this technique inevitably requires a margin of uncertainty as to the mismatch to be taken into account in the signatures for deciding to trigger the start or the end of a recording.

extraction instructions, in at least one stream of an audiovisual programme previously received by the recognition unit via the broadcasting network, for extracting the portion of content. This portion is extracted from the audiovisual programme previously received.

5 This specification unit is preferably capable of cooperating with any one of the embodiments of the recognition unit of the invention.

 Preferably, the preparation and transmission modules of this specification unit are designed respectively to prepare and transmit identifiers relating to the actions to be triggered in case of detection of the
10 synchronization signals.

 The action identifiers then advantageously relate to at least one of the following actions: transmission of an interactive service, triggering of an interactive service, triggering of an update of an interactive service, triggering of a recording of the audiovisual programme and connection to a website.
15 The first action is more specifically intended for a detection of synchronization signals at the level of a broadcaster or of a services operator, while the last three actions are typically applicable in the case where the recognition is performed in a terminal for receiving audiovisual programmes (for example triggering of an embedded service, possibly
20 consisting in the triggering of its appearance).

 According to advantageous embodiments relating to the obtaining of the extracted portion:

 - the preparation and transmission modules are such that the recognition elements may include this extracted portion;
25 and/or the preparation and transmission modules are such that the recognition elements may include at least one

CLAIMS (Apparent modifications)

1. Recognition unit (2) for recognizing synchronization signals in at least one audiovisual programme (15) received, said audiovisual programme (15) comprising an audiovisual content intended to be transmitted to users and control information, said recognition unit (2) comprising:
- a reception module (21, 24) and a recording module (25) for recording in a storage space (20), recognition elements (11) making it possible to obtain at least one extracted portion of the content of said audiovisual programme (15),
 - a reception module (21) for receiving via a broadcasting network (81), at least one transmitted stream carrying said audiovisual programme (15),
 - a detection module (22) for detecting said synchronization signals (11) in said audiovisual programme (15) received, by means of said recognition elements (11) stored in said storage space (20), by recognition in the content of said audiovisual programme (15) received, of said extracted portion,
 - and a transmission module (23) for transmitting action instructions (12) in case of detection of said synchronization signals in said audiovisual programme (15), said instructions (12) being designed to trigger at least one action,
- characterized in that the module (21, 24) for receiving the recognition elements (11) is designed to receive among said recognition elements (11), instructions for extracting said extracted portion from at least one stream of an audiovisual programme previously received by the stream reception module (21), said portion being extracted from said audiovisual programme previously received, and in that said recording module (25) is designed to directly extract said portion of said stream according to said extraction instructions and to record said portion in the storage space (20).

2. Recognition unit (2) according to Claim 1, characterized in that the module (21, 24) for receiving the recognition elements (11) is designed to receive a triggering message and in that the recording module (25) is
5 designed to extract and record upon receipt of said triggering message, said portion of said previously received stream.

3. Recognition unit (2) according to one of Claims 1 or 2, characterized in that the module (24) for receiving the recognition elements
10 (11) is also designed to receive among said recognition elements (11), at least one identifier of said extracted portion, and in that said detection module (22) is capable of retrieving from the storage space (20) said previously recorded extracted portion associated with said identifier, so as to recognize in the content of said audiovisual programme (15) received said
15 extracted portion.

4. Recognition unit (2) according to any one of the preceding claims, characterized in that the module (24) for receiving the recognition elements (11) is also designed to receive directly said extracted portion
20 among said recognition elements (11) and the recording module (25) is designed to record said extracted portion in the storage space (20).

5. Recognition unit (2) according to any one of the preceding claims, characterized in that the recognition unit (2) also comprises a timeout
25 module (26) before despatch of said action instructions (12) by the transmission module (23).

6. Recognition unit (2) according to any one of the preceding claims, characterized in that the modules for receiving (24) and for recording
30 (25) recognition elements (11) and the module for transmitting (23) action

instructions (12) are designed to respectively receive, record and transmit identifiers (12) relating to said actions to be triggered.

5 7. Recognition unit (2) according to any one of the preceding claims, characterized in that each of said portions of content consists of at least one of the following portions: a picture, a piece of picture, a sound and any combination of at least two of said portions.

10 8. Recognition unit (2) according to any one of the preceding claims, characterized in that said recognition elements (11) include at least one Boolean operator, said detection module (22) being designed to detect at least two of said portions of content in conjunction with said Boolean operator and the transmission module (23) being designed to transmit said action instructions (12) in case of such detection.

15 9. Recognition unit (2) according to any one of the preceding claims, characterized in that said recognition elements (11) include at least one time information item, said detection module (22) being designed to detect said portions of content in conjunction with said time information item and the transmission module (23) being designed to transmit said action instructions (12) in case of such detection.

20 10. Recognition unit (2) according to Claim 9, characterized in that said time information item comprises at least one information item chosen from among a date of detection and a detection time slot.

30 11. Recognition unit (2) according to any one of the preceding claims, characterized in that said recognition elements (11) include at least one channel reference, said detection module (22) being designed to detect said portions of content in conjunction with said channel reference and the

transmission module (23) being designed to transmit said action instructions (12) in case of such detection.

- 5 12. Specification unit (1) for specifying synchronization signals associated with at least one audiovisual programme (15), said audiovisual programme (15) comprising an audiovisual content intended to be transmitted to users and control information, and said synchronization signals being intended to be detected in at least one stream carrying said audiovisual programme (15) transmitted via a broadcasting network (81) and
- 10 to thus trigger at least one action,
- characterized in that said specification unit (1) comprises:
- a preparation module (34) for preparing recognition elements (11) making it possible to obtain at least one extracted portion of the content of said audiovisual programme (15),
- 15 - and a transmission module (37) for transmitting said recognition elements (11) independently of transmissions of said audiovisual programme (15), to at least one recognition unit (2) intended to detect said synchronization signals in said transmitted stream carrying said audiovisual programme (15), by recognizing said extracted portion in the content of said
- 20 audiovisual programme (15),
- and in that the preparation (34) and transmission (37) modules of said unit (1) are designed respectively to prepare and transmit extraction instructions, in at least one stream of an audiovisual programme previously received by the recognition unit (2) via the broadcasting network (81), for
- 25 extracting said portion of content, said portion being extracted from said audiovisual programme previously received,
- said specification unit (1) preferably being capable of cooperating with said recognition unit (2) in accordance with any one of Claims 1 to 11.

13. Specification unit (1) according to Claim 12, characterized in
- 30 that the preparation (34) and transmission (37) modules of said unit (1) are

designed respectively to prepare and transmit identifiers (12) relating to said actions to be triggered in the case of detection of said synchronization signals.

5 14. Specification unit (1) according to Claim 13, characterized in that said action identifiers (12) relate to at least one of the following actions: transmission of an interactive service (S), triggering of an interactive service (S), triggering of an update of an interactive service (S), triggering of a recording of said audiovisual programme (15) and connection to a website.

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15. Synchronization system (5) comprising:

- a specification unit (1) for specifying synchronization signals associated with at least one audiovisual programme (15), said audiovisual programme (15) comprising an audiovisual content intended to be
15 transmitted to users and control information,

- a recognition unit (2) for recognizing said synchronization signals in at least one stream carrying said audiovisual programme (15) transmitted via a broadcasting network (81), by recognizing at least one extracted portion of the content of said audiovisual programme (15), in the
20 audiovisual programme received,

- and an activation unit (3) designed to trigger at least one action in the case of detection of said synchronization signals by the recognition unit (2),

characterized in that the specification unit (1) is designed to
25 prepare and transmit to the recognition unit (2) recognition elements (11) making it possible to obtain said extracted portion and comprising instructions for extracting said portion of the content from at least one stream of an audiovisual programme previously received by the recognition unit (2) via the broadcasting network (81), said portion being extracted from said
30 audiovisual programme previously received, and in that the recognition unit

(2) is designed to directly extract said portion of said stream according to said extraction instructions and to record said portion,

the recognition unit (2) preferably being in accordance with any one of Claims 1 to 11 and the specification unit (1) preferably being in
5 accordance with any one of Claims 12 to 14.

16. Broadcasting centre (50), characterized in that it comprises a device chosen from among at least a specification module (1) in accordance with any one of Claims 12 to 14, a recognition module (2) in accordance with
10 any one of Claims 1 to 11, and a synchronization system in accordance with Claim 15.

17. Services operator (60), characterized in that it comprises a device chosen from among at least a specification module (1) in accordance with any one of Claims 12 to 14, a recognition module (2) in accordance with
15 any one of Claims 1 to 11, and a synchronization system in accordance with Claim 15.

18. Terminal (70) for receiving audiovisual programmes (15),
20 characterized in that it comprises a device chosen from among at least a specification module (1) in accordance with any one of Claims 12 to 14, a recognition module (2) in accordance with any one of Claims 1 to 11, and a synchronization system in accordance with Claim 15.

25 19. Process for activation by recognition of synchronization signals in at least one audiovisual programme (15) received, said audiovisual programme (15) comprising an audiovisual content intended to be transmitted to users and control information, said process comprising the following steps:

30 - reception via a broadcasting network (81), of at least one transmitted stream carrying said audiovisual programme (15),

- detection of said synchronization signals (11) in said audiovisual programme (15) received by means of recognition elements (11) making it possible to obtain at least one extracted portion of the content of said audiovisual programme (15) and stored in a storage space (20), by
5 recognizing said extracted portion, in the content of said audiovisual programme (15),

- and triggering of at least one action in case of detection of said synchronization signals in said audiovisual programme (15),

characterized in that said recognition elements (11) including
10 instructions for extracting said extracted portion from at least one stream of a previously received audiovisual programme, by extracting said portion from said audiovisual programme previously received, said portion of said previously received stream is extracted directly according to said extraction instructions and said portion is recorded in the storage space (20),

15 said recognition process preferably being implemented in particular by means of a recognition unit (1) in accordance with any one of Claims 1 to 11.

20 20. Specification process for specifying synchronization signals associated with at least one audiovisual programme (15), said audiovisual programme (15) comprising an audiovisual content intended to be transmitted to users and control information, and said synchronization signals being intended to be detected in at least one stream carrying said audiovisual programme (15) transmitted via a broadcasting network (81) and
25 to thus trigger at least one action,

characterized in that said specification process comprises the following steps:

- preparation of recognition elements (11) making it possible to obtain at least one extracted portion of the content of said audiovisual
30 programme (15),

- transmission of said information independently of transmissions of said audiovisual programme (15), for detection of said synchronization signals in said transmitted stream carrying said audiovisual programme (15), by recognizing said extracted portion in the content of said audiovisual programme (15),

- and transmission of extraction instructions, in at least one stream of an audiovisual programme previously received by the recognition unit (2) via the broadcasting network (81), for extracting said portion of content, by extracting said portion from said audiovisual programme previously received,
said specification process preferably being implemented by means of a specification unit (1) in accordance with any one of Claims 12 to 14.

21. Synchronization process comprising the following steps:

- a step of specifying synchronization signals associated with at least one audiovisual programme (15), said audiovisual programme (15) comprising an audiovisual content intended to be transmitted to users and control information, in which step recognition elements (11) making it possible to obtain at least one extracted portion of the content of said audiovisual programme (15) are specified for said detection,

- a step of detecting said synchronization signals in at least one stream carrying said audiovisual programme (15) transmitted via a broadcasting network (81), in which step said synchronization signals are detected in said audiovisual programme received, by recognizing said extracted portion in the content of said audiovisual programme (15),

- and a step of triggering at least one action in case of detection of said synchronization signals,

characterized in that said recognition elements (11) comprising instructions for extracting said portion of content from at least one stream of an audiovisual programme previously received by the recognition unit (2) via the broadcasting network (81), by extracting said portion from said

audiovisual programme previously received, are prepared and transmitted to the recognition unit (2), and in that said portion of said stream is extracted directly according to said extraction instructions and said portion is recorded, said synchronization process preferably being implemented by the

5 synchronization system (5) of Claim 15.

22. Computer program product, characterized in that it comprises program code instructions for the execution of the steps of one of the processes according to one of Claims 19 to 21 when said program is

10 executed on a computer.